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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,146	06/27/2003	Joel P. DeSouza	FIS920030091	1145
32074 7590 07/26/2007 INTERNATIONAL BUSINESS MACHINES CORPORATION DEPT. 18G BLDG. 300-482 2070 ROUTE 52 HOPEWELL JUNCTION, NY 12533			EXAMINER CHEN, JACK S J	
			ART UNIT 2813	PAPER NUMBER
			MAIL DATE 07/26/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/604,146

Applicant(s)

DESOUZA ET AL.

Examiner

Jack Chen

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,7,8 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 7-8 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____                                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-2, 7-8 and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Re claim 1, the phrase "implanting a second dose including at least one of oxygen ions or nitrogen ions into said oxygen-implanted regions" is not described in the original specification (note: second energy is lower than first energy). Re claim 2, the phrase "said semiconductor layer of said substrate disposed above said BOX layer consists essentially of single crystal silicon" is not supported by the original specification. Claims 7-8 and 22 are rejected for depending from the above rejected claims.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 7-8 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Griffith, US/4,786,608.

Re claim 1, Griffith discloses a method for forming a semiconductor device, which comprises implanting a base dose (i.e.,  $1.6E18$ - $2.4E18$ ) including oxygen ions (fig. 1; col. 4, lines 1-16) at a first energy level (i.e., 150 keV-200 keV) into a buried region (i.e., region 13 of fig. 1) disposed below a major surface 11 of a semiconductor substrate 15 to form an oxygen-implanted region 13 (fig. 1); implanting a second dose (i.e.,  $0.5$ - $2E15$ ) including at least one of oxygen ions or nitrogen ions (col. 5, line 62-col. 6, line 10 and col. 4, lines 29-55) into said oxygen-implanted region (fig. 2) at a second energy level (i.e., 120-140 keV) while maintaining said substrate at room temperature (fig. 2, col. 4, lines 28-55); and annealing (col. 4 lines 55-68; in this case, oxygen ions is used as the source) said substrate to cause said ions implanted by said steps of implanting said base dose (i.e., oxygen ions, see fig. 1; col. 4, lines 1-16) and said second dose (i.e., oxygen ions, see fig. 2; col. 5, line 62 to col. 6, line 10) to be redistributed in said substrate and to react with a material of said substrate to form a buried oxide layer 13 (figs. 2-3, this is intrinsic properties of the material due to annealing) in said oxygen implanted region, said BOX layer 13 electrically isolating a semiconductor layer 14 (fig. 3) of said substrate disposed above said BOX layer from a semiconductor region 15 of said substrate disposed below said BOX layer (fig. 3), see figs. 1-4 and cols. 1-8 for more details.

Re claim 2, wherein said semiconductor layer 14 of said substrate disposed above said BOX layer consists essentially of single crystal silicon (fig. 1 and col. 4, lines 1-10) and said BOX layer 13 includes silicon dioxide (fig. 4).

Re claim 7, wherein said first energy level (i.e., 150-200 keV, see col. 4, lines 10-20) and said second energy level (i.e., 120-140 keV, see col. 4, lines 30-40) are in a range between about 40 keV to about 240 keV.

Re claim 8, wherein said second dose (i.e.,  $0.5\text{-}2\text{E}15$ , see col. 4, lines 40-55) has a lower value than said base dose (i.e.,  $1.6\text{E}18\text{-}2.4\text{E}18$ , col. 4, lines 10-15).

Re claim 22, where said second energy level (i.e., 140 keV) is set lower than said first energy (i.e., 150 keV) level by up to about 10%  $[(150-140)/150=6.7\%]$ .

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Chen whose telephone number is (571)272-1689. The examiner can normally be reached on Monday-Friday (8:00am-4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead can be reached on (571)272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jack Chen  
Primary Examiner  
Art Unit 2813

July 22, 2007